

OPIOID RECEPTORS AND ANTITUSSIVE ACITIVITY OF WITHANIA SOMNIFERA

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Arabinogalactan, isolated from the roots of medicinal plant *Withania somnifera* L., showed various biological effects on the citric acid-induced cough reflex. It possessed cough suppression effect comparable with opioid agonist codeine. Therefore, we decided to clarify its mechanism of action through the involvement of opioid receptors.

Experiments were carried out on the concious male guinea pigs weighing 250-300g (Trix). The plant substance (*Withania somnifera*) was applied to the first group of guinea pigs perorally in a dose 50 mg.kg⁻¹. The cough reflex was evoked by citric acid in concentration 0,3M. To second group of guinea pigs, we applied 15 min. before own application of arabinogalactan (WS), Naloxon hydrochlorid (i.p.) in a dose 3 mg.kg⁻¹. Nonselecitve antagonist Naloxon methiodid in a dose 10 mg.kg⁻¹ was applied in the same way as Naloxon hydrochlorid (15 min. before WS) to the third group of animals.

Polysaccharide isolated from *Withania somnifera* showed the ability after oral administration reduced the parameters of citric acid induced cough in awaken guinea pigs healthy *in vivo* experimental conditions. We showed that on reduction of cough reflex induced by administration of arabinogalactan from *Withania somnifera* are participated both centrally and peripherally acting opioid receptors.

Our results supported our previous findings that naturally occurring polysaccharides possess antitussive activity. This study also represents the participation of centrally and peripherally acting opioid receptors on reduction of cough reflex induced by *Withania somnifera*.

Key words: *Withania somnifera*, cough, opioid receptors